

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A device for determining and displaying information about the repetitive movement of a swimmer's body, the device comprising:

a sensor assembly comprising at least ~~one~~ two static acceleration ~~sensor~~ sensors configured to be mounted to the swimmer's ~~body~~ back and including a first acceleration sensor positioned to track movement of the swimmer's body about a first axis that is substantially parallel to a direction of travel of the swimmer's body and a second acceleration sensor positioned on the swimmer's body to detect movement about a second axis that is substantially perpendicular to the first axis, and to generate at least ~~one~~ first and second static acceleration ~~signal~~ signals when the swimmer is swimming; and a processor coupled to the sensor assembly and configured to determine at least one from among a stroke identification, a stroke count, a stroke pattern, a lap count, and a breathing pattern in response to only the at least one static acceleration signal and to provide a signal for display.

2. (Currently Amended) A device for determining and displaying information about the repetitive movements of a swimmer's body, the device comprising:

a sensor assembly comprising a first static acceleration sensor and a second static acceleration sensor configured to be mounted to the swimmer's ~~body~~ body to detect movement about a longitudinal axis of the swimmer's body and an axis perpendicular to the longitudinal axis, respectively, and to generate first and second static acceleration signals in response to movement of the swimmer's body when swimming; and a processor and display device coupled to the sensor assembly and configured to provide a real-time, continuous display of a stroke pattern of the swimmer's body in response to only the first and second static acceleration signals.

3. (Previously Presented) The device of claim 2 wherein the processor and display device are also configured to display the stroke pattern for each arm of the human body.

4. (Previously Presented) The device of claim 2 wherein the processor and display device are also configured to display the breathing pattern of the swimmer's body.

5. (Currently Amended) A device for determining and displaying information about the repetitive movements of a swimmer's body, the device comprising:

a sensor comprising a ~~two-axis~~ first accelerometer configured to be mounted to the swimmer's ~~body-back~~ and to detect movement about a first axis that is substantially parallel to a direction of travel of the swimmer's body and a second accelerometer configured to be mounted to the swimmer's body to detect movement that is substantially perpendicular to the first axis, the sensor configured to generate first and second static acceleration signals in response to movement of selected areas of the swimmer's body while swimming;

a processing circuit comprising a processor coupled to the sensor and configured to receive the first and second static acceleration signals and to determine the swimmer's stroke pattern and breathing pattern in response to only the first and second static acceleration signals; and

a display device for providing a real-time, continuous visual display of the swimmer's stroke pattern, stroke count, and breathing pattern.

6. (Canceled)

7. (Previously Presented) The device of claim 5 wherein the processor is configured to determine the swimmer's kick pattern, and the display device is configured to display the swimmer's kick pattern, the kick pattern comprising at least one kick count.

8. (Canceled)

9. (Currently Amended) The device of claim 5 wherein the accelerometer is positioned to detect the angle of ~~a~~the first axis that is substantially parallel to the direction of travel of the swimmer's body and the angle of ~~a~~the second axis, which is substantially perpendicular to the first axis, with respect to a vertical axis.

10. (Original) The device of claim 5 wherein the first and second axes are positioned parallel to the surface of the earth.

11. (Original) The device of claim 5 wherein the swimmer's stroke pattern comprises a stroke count, the starting of swimming, the stopping of swimming, and turns to reverse course.

12. (Currently Amended) A device for determining and communicating information about the repetitive movements of a swimmer's body, the device comprising:

a sensor assembly configured for mounting to the swimmer's ~~body-back~~ and comprising a first accelerometer positioned to detect rolling motion of the swimmer's body about a longitudinal axis of the swimmer's body that is substantially parallel to the direction of travel of the swimmer's body, and a second accelerometer that is positioned to detect tilting movement of the swimmer's body about an axis that is substantially perpendicular to the longitudinal axis, the sensor assembly configured to generate static acceleration signals in response to tilting and rolling movements of the swimmer's body;

a processor coupled to the sensor and configured to provide real-time, continuous signals identifying at least the swimmer's stroke type and the swimmer's stroke pattern in response to only the static acceleration signals;

means for transmitting the real-time, continuous signals from the processor; and

a communication device configured to receive the real-time, continuous signals from the transmitting means and to communicate at least the swimmer's stroke type and stroke pattern.

13. (Original) The device of claim 12 wherein the transmitting means comprise at least one bus to convey data from the processor to the communication device.

14. (Original) The device of claim 12 wherein the transmitting means comprise a radio frequency transmitter for transmitting signals from the processor to the communication device.

15. (Original) The device of claim 12 wherein the communication device comprises an earpiece coupled to the processor via the transmitting means and configured to generate audible sounds corresponding to at least the swimmer's stroke type and stroke pattern.

16. (Original) The device of claim 12, wherein the transmitting means is configured to transmit signals from the sensor assembly to the processor.

17. (Currently Amended) A device for monitoring repetitive movement of a swimmer's body, comprising:

a sensor assembly comprising a first acceleration sensor configured to be mounted to the swimmer's body and to generate a first static acceleration signal corresponding to acceleration of the swimmer's ~~body~~ back about a first axis that is substantially parallel to the direction of travel of the swimmer's body when swimming and a second acceleration sensor configured to be mounted to the swimmer's back to generate a second static acceleration signal corresponding to acceleration of the swimmer's body about a second axis that is substantially perpendicular to the first axis, respectively of the swimmer's body when swimming;

a processor configured to receive the first and second static acceleration signals and to determine at least a stroke type and a stroke pattern of the swimmer's body therefrom; and

a display device coupled to the processor and configured to display at least the stroke type and the stroke pattern.

18. (Previously Presented) The device of claim 17 wherein the display device is configured to display real-time, continuous information regarding the stroke type and stroke pattern.

19. (Previously Presented) The device of claim 17, comprising an audio device coupled to the processor and configured to generate audible sounds corresponding to at least the stroke type and the stroke pattern.

20. (Canceled)

21. (Previously Presented) The device of claim 17 wherein the stroke pattern comprises the breathing pattern of the human body.

22. (Previously Presented) The device of claim 17 wherein the stroke pattern comprises at least stroke count, starting of swimming, lap count stopping of swimming, and turning movements to change course.

23.-24. (Canceled)

25. (Currently Amended) A method for monitoring repetitive movement of a swimmer's body, the method comprising:

mounting a first sensor assembly to the swimmer's body-back to detect and track movement of the swimmer's body about a first axis parallel to the direction of travel of the swimmer's body and mounting a second sensor to the swimmer's back to detect and track movement of the swimmer's body about a second axis that is perpendicular to the first axis, both with respect to a vertical axis, and generating first and second static acceleration signals therefrom, when the swimmer is swimming;

receiving and processing the first and second static acceleration signals to determine at least variations in the swimmer's stroke pattern and kicking pattern over time; and

providing a real-time, continuous observable output of at least the variations in the stroke pattern and the kicking pattern.

26. (Previously Presented) The method of claim 25, further comprising receiving and processing the first and second static acceleration signals to determine the swimmer's breathing pattern and providing a real-time, continuous display of the swimmer's breathing pattern.

27. (Canceled)

28. (Previously Presented) The method of claim 25 comprising providing an audible signal corresponding to the swimmer's stroke pattern.

29. (Original) The method of claim 25 wherein the swimmer's stroke pattern comprises at least one from among periodicity, stroke count, start and stop of stroke, and stroke elapsed time.

30. (Canceled)

31. (Previously Presented) A system for detecting and communicating information about the repetitive movements of a swimmer's body, the system consisting of:

a first accelerometer configured to be mounted on the swimmer's back and positioned to detect rolling motion of the swimmer's body about a longitudinal axis of the swimmer's body that is parallel to the direction of travel of the swimmer's body, and a second accelerometer that is configured to be mounted on the swimmer's back and positioned to detect tilting movement of the swimmer's body about an axis that is perpendicular to the longitudinal axis, the first and second accelerometers configured to generate respective first and second continuous static acceleration signals in response to tilting and rolling movements of the swimmer's body;

a processor coupled to the first and second accelerometers and configured to provide real-time, continuous signals identifying at least the swimmer's stroke type and the swimmer's stroke pattern in response to only the first and second static acceleration signals;

a transmitter adapted to transmit the real-time, continuous signals from the processor; and

a communication device configured to receive the real-time, continuous signals from the transmitting means and to communicate at least the swimmer's stroke type and stroke pattern.

32. (Previously Presented) A method for monitoring repetitive movement of a swimmer's body and generating stroke pattern information therefrom, the method consisting of:

mounting a first accelerometer and a second accelerometer to the swimmer's back and positioning the first accelerometer to detect and track movement of the swimmer's body about a first axis parallel to the direction of travel of the swimmer's body and positioning the second accelerometer to detect and track movement of the swimmer's body about a second axis that is perpendicular to the first axis, both with respect to a vertical axis, and each accelerometer generating respective first and second continuous static acceleration signals;

receiving and processing the first and second continuous static acceleration signals in a processor and display device that are configured to provide a real-time, continuous observable output of the swimmer's stroke pattern.